

## 2. SCOPE OF CLAIM FOR PATENT

A moving image providing system having a moving image center device including a moving image file device storing a plurality of moving image information, a main control unit for  
5 retrieving moving image information of said moving image file device and reproducing the retrieved moving image information, and a circuit connection device, individually connected to a plurality of terminal units through a communication circuit and said moving image center device providing moving image  
10 information based on a program request information from arbitrary terminal unit to said terminal unit, wherein said moving image center device comprising:

a moving image position information storage portion storing an intermediate end position of a moving image  
15 information provided in the past and reading out stored information by said main control unit; and

a moving image position information control portion supplied said intermediate end position information read out from said moving image position information storage portion  
20 by said main control unit, reading out information of subsequent to the portion provided in the past of the predetermined moving image information on the basis of said intermediate end position information from said moving image file device, broadcasting outputting to the communication circuit via said circuit

connecting device.

### 3. DETAILED DESCRIPTION OF THE INVENTION

#### [Field of Industrial Application]

The present invention relates to a moving image providing  
5 system. More particularly, the invention relates to a moving  
image providing system, in which a moving image center device  
and a terminal unit are connected by a communication circuit,  
retrieval of moving image file is performed on the basis of  
a program request information transmitted from the terminal  
10 unit, and information content of the retrieved moving image  
file is distributed to the terminal unit.

Amobbing image providing system, such as a video response  
system (VRS) has a network construction as shown in Fig. 3.  
In the same figure, the reference numeral 10 denotes a moving  
15 image center device connected to terminal units  $11_1$  to  $11_m$   
separately through high speed moving image transmission  
dedicated communication circuits  $12_1$  to  $12_m$ . The moving image  
center device 10 retrieves program request information from  
the moving image file on the basis of the program request  
20 information transmitted from the terminal units  $11_1$  to  $11_m$  and  
transmits the moving information to the terminal unit which  
transmitted the request. In this case, it is necessary to again  
provide from subsequence of the moving image program provided  
in the past for improving service, again.

(Prior Art)

Fig. 4 is an illustration showing a construction of one example of the conventional moving image providing system. In the same figure, the same components to those in Fig. 3 will be identified by the same reference numerals. The moving image center device 10 is constructed with a moving image file device 101, a main control unit 102 and a circuit connection device 103. in which the circuit connection device 103 is connected to the terminal unit 11 via the communication circuit 12. As set forth above, a plurality of terminal units 11 are present and respectively connected to the circuit connection device 103 via individual dedicated communication circuit 12.

In the conventional moving image providing system of the construction set forth above, when a program request information is transmitted to the moving image center device 10 from the terminal unit 11 operated by the user through the communication circuit 12, the moving image center device 10 receives this through the circuit connection device 103, and the main control unit 102 performs retrieval of the moving image file device 101 on the basis of the program request information.

The moving image program information obtained as a result of retrieval is transmitted to the terminal unit 11 via the circuit connection device 103 and the communication circuit 12 under control of the main control unit 102 to be displayed

on the terminal device 11.

[Problem to be Solved by the Invention]

However, in the conventional moving image providing system as set forth above, when reception is interrupted in some reason, such as urgent business or the like while the user of the terminal unit 11 is receiving the moving image program, a function for storing the interrupted position information of the moving image program and a function for retrieving the moving image file device 101 on the basis of the position information are not provided.

Therefore, the user cannot receive service of the moving image program from the interrupted position, and the interrupted moving image program has to be received again from the beginning to degrade usability.

The present invention has been worked out in view of the problem set forth above. An object of the present invention is to provide a moving image providing system which can provide the moving image information provided in the past from subsequence, by storing interrupted position of the moving image program in the moving image position information storage portion of the main control unit in the moving image center device when the user interrupts during reception of the moving image program, at the occurrence of the request for the same program again, the main control unit performs retrieval of the moving image

file via the moving image position information control portion of the moving image file device on the basis of the interrupted position information.

[Means for Solving the Problem]

5           According to the present invention, a moving image providing system having a moving image center device including a moving image file device storing a plurality of moving image information, a main control unit for retrieving moving image information of said moving image file device and reproducing  
10 the retrieved moving image information, and a circuit connection device, individually connected to a plurality of terminal units through a communication circuit and said moving image center device providing moving image information based on a program request information from arbitrary terminal unit to said  
15 terminal unit, wherein said moving image center device comprises:

          a moving image position information storage portion storing an intermediate end position of a moving image information provided in the past and reading out stored  
20 information by said main control unit; and

          a moving image position information control portion supplied said intermediate end position information read out from said moving image position information storage portion by said main control unit, reading out information of subsequent

to the portion provided in the past of the predetermined moving  
image information on the basis of said intermediate end position  
information from said moving image file device, broadcasting  
outputting to the communication circuit via said circuit  
5 connecting device.

[Operation]

When the main control unit receives the program request  
information transmitted from the terminal unit of the user,  
the main control unit performs retrieval of database of the  
10 moving image position information storage portion to make  
judgment whether the request is for newly designated moving  
image program or one provided in the past and interrupted at  
intermediate position by the user. In case of the former,  
retrieval of the moving image file is performed in similar manner  
15 as the prior art to output and display the moving image  
information content of the moving image program from the  
beginning on the terminal unit via the circuit connection  
device and the communication circuit.

On the other hand, in case of the latter, the main control  
20 unite reads out the intermediate interrupted position of the  
moving image program provided in the past to supply the moving  
image program name and the position information to the moving  
image position information control portion to perform retrieval  
of the moving image file device to output and display the

information content of subsequence of the portion of the past provided moving image program designated on the terminal unit via the circuit connection device and the communication circuit. Accordingly, in the present invention, subsequence of the portion of the past provided moving image program designated  
5 can be provided again.

[Embodiment]

Fig. 1 is an illustration showing a construction of one embodiment of the moving image providing system according to  
10 the present invention. In the same figure, the same components as Fig. 4 will be identified by the same reference numerals. In Fig. 1, the moving image center device 20 is differentiated from the conventional moving image center device 10 in that a moving image position information storage portion 201 is  
15 provided in the main control unit 102 and a moving image position information control portion 201 is provided in the moving image file device 101.

Next, operation of the shown embodiment will be discussed with reference to the flowchart shown in Fig. 2. The main control  
20 unit 102 of the moving image center device 20 is responsive to receive a program request information (this includes terminal identification number A uniquely assigned for the terminal unit 11) requesting providing of moving image program a, for example from the terminal unit 11 via the communication circuit 12 and

the circuit connection device 103 (step 31 of Fig. 2), retrieves the database of the terminal identification number A received by the moving image position information storage portion 201 (step 32 of Fig. 2) to make judgment whether matching data is present in the database or not (step 33 of the same figure).

Since the interrupted position information of the moving image program interrupted reception at the intermediate position by the user is stored in the moving image position information storage portion 201, as a result of judgment at the foregoing step 33, when the matching data is not present, it represents that the moving image program a of the program request information has not interrupted in reception in the past. Therefore, at this time, the main control unit 102 retrieves the moving image file device 101 (step 34 of Fig. 2) to output the moving image information of the moving image program a designated from the terminal unit 11 of the user from the beginning portion (step 35 of the same figure), for supplying to the terminal unit via the circuit connection device 103 and the communication circuit 12 and display the same.

During transmission period of the moving image information, the main control unit 102 monitors whether interruption information is transmitted from the terminal unit 11 or not (step 36 of Fig. 2). If the interruption information is not received, check is performed whether the moving image



information is read out to the end from the moving image file device 101 (step 37 of the same figure). If not completed, the process returned to step 36 to monitor presence or absence of reception of the interruption information. Accordingly, 5 during the transmission period of the moving image information, if the user interrupts reception in some cause once, the user transmits the interruption information from the terminal unit 11. This interruption information is received by the main control unit 102 via the communication circuit 12 and the circuit 10 connection device 103. The main control unit 102 immediately stops reading out of the moving image file device 101 and read out the interrupted position is read out via the moving image position information control portion 202 as the intermediate interruption position information (interrupted position 15 information) (this will be indicated as "a - 1") (step 38 of Fig. 2. Then, the main control unit 102 stores the read out the interrupted position information a-1 in the database of the terminal identification number A of the moving image position information storage portion 201 together with the program name 20 of the moving image program a (step 39 of Fig. 2).

After storing, the main control unit 102 transits to a routine other than the flowchart shown in Fig. 2 (step 40 of Fig. 2), to execute depending upon whether the next demand from the terminal unit 11 is present or interruption of the circuit

is required.

Next, user transmit the request information of the moving image program interrupted at the intermediate position of reception, from the terminal unit 11, the main control unit 102 executes respective processes of steps 31 to 33 shown in Fig. 2. At step 33, result of judgment can be obtained that the interrupted position information a-1 is present in the database of the terminal identification number A of the moving image position information storage portion 201. In this case, process is advanced to next step 41 to perform retrieval of the moving image file device 101 via the moving image position information control portion 202 on the basis of the interrupted position information a-1. At next step 42, reading out of the moving image information is started from the subsequent portion of the moving image information of the moving image program a provided in the past, as retrieved (namely designated interrupted position a-1), to advance the process to next step 36.

The moving image information read out from the subsequent portion is output to the terminal unit 11 via the circuit connection device 103 and the communication circuit 12 and displayed thereon.

Here, in judgment at step S33, user may includes a retrieval code indicating whether user want to see the subsequence from

the former time or see from the beginning again, is included the program request information to detect the same, or, in the alternative, or to see the subsequence or from the beginning through interactive process. In this case, only when the  
5 subsequence is desired to watch, the processes at steps 41 and 42 is performed. On the other hand, even when the matching interrupted position information is stored in the moving image position information storage portion 201, when the user designates to see from the beginning, the processes at steps  
10 34 and 35 are performed.

During reading out period of the moving image information read out from the subsequent portion, the main control unit 102 is responsive to detection of completion of reading out to the end without reception of interruption information through  
15 steps 36 and 37, the interrupted position information a-1 is reset from the database of the terminal identification number A of the moving image position information storage portion 201 (step 43 of Fig. 2) and process goes end (step 44 of the same figure).

20 On the other hand, when the user transmits the interruption information for interrupting reception again during moving image information transmission period receiving the subsequent portion, the main control unit 102 executes each process set forth above in the order of steps 36 → 38 → 39 of Fig. 2, then

the interrupted position information indicative of the second interrupted position (this will be referred to as "a-2") is stored in the database of the terminal number S of the moving image position information storage portion 201 for updating  
5 to be ready for request.

It should be noted that in the interrupted position information of the moving image program, a time code preliminarily written in the moving image file device 101 may be used. However, not limited to the time code, any information  
10 univocally identify the read out position of the moving file may be used as a matter of course.

#### [Effect of the Invention]

As set forth, with the present invention, even when user interrupts reception of the moving image program at intermediate  
15 position, the position information of the interrupted moving image file is stored in the moving image position information storage portion together with the moving image program name. Therefore, even when the same moving image program is provided again, the user may receive service of the moving image  
20 information again from the interrupted position of the moving image program. Therefore, as compared with the prior art, the moving image providing system with good usability can be established.

#### 4. BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an illustration of a construction of one embodiment of the moving image providing system according to the present invention, Fig. 2 is a flowchart for explaining operation of one embodiment of the present invention, Fig. 3  
5 is an illustration showing a construction of a network of the moving image providing system, and Fig. 4 is an illustration showing a construction of one example of the conventional moving image providing system.

DRAWINGS

Fig. 1

- 20 MOVING IMAGE CENTER DEVICE
- 5 102 MAIN CONTROL UNIT
- 201 MOVING IMAGE POSITION INFORMATION STORAGE PORTION
- 202 MOVING IMAGE POSITION INFORMATION CONTROL PORTION
- 101 MOVING IMAGE FILE DEVICE
- 103 CIRCUIT CONNECTION DEVICE
- 10 12 COMMUNICATION CIRCUIT
- 11 TERMINAL UNIT

Fig. 2

START

- 15 31 RECEIVE PROGRAM REQUEST INFORMATION
- 32 RETRIEVE MOVING IMAGE POSITION INFORMATION STORAGE PORTION
- 33 MATCHING DATA PRESENT?
- 34 RETRIEVE MOVING IMAGE FILE DEVICE
- 20 35 OUTPUT BEGINNING PORTION OF MOVING IMAGE INFORMATION OF RETRIEVED MOVING IMAGE PROGRAM
- 41 RETRIEVE MOVING IMAGE FILE DEVICE BASED ON INTERRUPTED POSITION INFORMATION
- 42 OUTPUT FROM SUBSEQUENT PORTION OF MOVING IMAGE

INFORMATION OF THE MOVING IMAGE PROGRAM PROVIDED IN THE PAST  
AS RETRIEVED

36 INTERRUPT INFORMATION RECEIVED?  
37 MOVING IMAGE INFORMATION READ OUT UP TO THE END?  
5 38 INTERRUPT READING OF THE MOVING IMAGE FILE DEVICE AND  
READ OUT INTERRUPTED POSITION INFORMATION  
43 RESET MOVING IMAGE POSITION INFORMATION STORAGE PORTION  
39 STORE INTERRUPTED POSITION INFORMATION TO MOVING IMAGE  
POSITION INFORMATION STORAGE PORTION  
10 44 END  
40 RETURN

Fig. 3

11<sub>1</sub> TERMINAL UNIT  
15 11<sub>2</sub> TERMINAL UNIT  
11<sub>i</sub> TERMINAL UNIT  
11<sub>i+1</sub> TERMINAL UNIT  
11<sub>i+2</sub> TERMINAL UNIT  
11<sub>N</sub> TERMINAL UNIT  
20 10 MOVING IMAGE CENTER DEVICE

Fig. 4

10 MOVING IMAGE CENTER DEVICE  
102 MAIN CONTROL UNIT

- 101 MOVING IMAGE FILE DEVICE
- 103 CIRCUIT CONNECTION DEVICE
- 12 COMMUNICATION CIRCUIT
- 11 TERMINAL UNIT